Finding Diamonds In The Rough ...

OPERATION EXTENDED VISION

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Introduction

Most acquisition programs undergo two design iterations: Engineering Manufacturing and Development (EMD) and Low-Rate Initial Production (LRIP). EMD addresses difficult technical issues and the manufacturing approach prior to the production phase. LRIP is often used to test the final design in developmental and operational tests and construct the manufacturing facilities and procedures prior to committing to full-rate production. Prototypes developed during EMD are often only used during EMD because they rarely become the final design and are not usually fielded.

Prototypes are usually rough, limited reliability models and are often of little value as the program progresses. However, innovation and acquisition streamlining sometimes create an opportunity to have a single program design phase; hence, EMD design is the final design and the EMD prototypes may become highly useful. This is the case with the Long Range Advanced Scout Surveillance System (LRAS3).

The LRAS3 Program resulted in 13 EMD assets for system and software development, developmental and environmental testing, and initial operational test and evaluation. Because the acquisition strategy did not include an LRIP phase and was fiscally constrained, eight of the EMD prototypes were refurbished and fielded as training base assets at the U.S. Army Armor Center (USAARMC). This was necessary to meet the Army's procurement objective of 638 systems. However, one of those magical acquisition rarities occurred: the program's production phase came in under budget because of commercial and military off-the-shelf practices, a competitive multiyear contract, and an aggressive risk-management plan. This allowed the product office to fund all 638 systems without having to refurbish and field the EMD systems. These eight EMD assets became program office assets used for demonstrations, follow-on testing, and design and testing of preplanned product improvements.

Events in June 2000, however, caused the LRAS3 team to embark on a different development path. An incredible opportunity for these systems arose when the Commanding General of the 1st Armored Division requested assistance in filling a critical shortfall in Task Force (TF) Falcon's Brigade Reconnaissance Troop's (BRT's) long-range night-vision capability in Kosovo. The shortfall arose when a Canadian Army sensor system was redeployed to Canada. In September 2000, the Office of the Deputy Chief of Staff for Operations approved the urgent need to field three EMD LRAS3s prototypes to Kosovo in support of TF Falcon. The following paragraphs describe how these leftover models became critical operational "diamonds in the rough" and details the process to loan prototypes in Operation Extended Vision.

LRAS3

The LRAS3 consists of a second generation forward looking infrared (FLIR) with long-range optics, an eye-safe laser rangefinder, a day video camera, and a Global Positioning System (GPS) with attitude determination. The LRAS3 allows scouts to detect long-range targets and determine the 10-digit grid coordinate of any target within range. The LRAS3 will be fielded to all mechanized infantry and armor battalion scout platoons, BRTs, and Interim Brigade Combat Team (IBCT) reconnaissance squadrons. The system can operate in the dismounted configuration or can be mounted on the M1025 Scout High Mobility Multipurpose Wheeled Vehicle (HMMWV) or Interim Armored Vehicle. The LRAS3 Program is currently in its first production year with a goal of 60 systems.

Challenges

The biggest challenge was time. In 4 weeks, the team had to obtain an urgent-need materiel release, design and manufacture a new vehicle integration kit, update the training support package, and ship the LRAS3s overseas.

TF Falcon's BRT is equipped with the M1114 (Up-Armor) HMMWV. The current vehicle integration kit is designed for the M1025 HMMWV and is incompatible with the M1114. The prime contractor and the U.S. Army Communications-Electronics Command's (CECOM's) Night Vision and Electronic Sensors Directorate designed, developed, and hand-built three new integration kits over a 3-week period. This work was monitored by the Product Manager (PM), FLIR and the Project Manager, Light Tactical Vehicles to ensure that the installation of the integration kit provided a safe operational environment for the scout and did not degrade the ballistic characteristics of the M1114.

Because the LRAS3 contains trace amounts of compressed helium and compressed methane, the system is considered hazardous material (HAZMAT). Although HAZMAT has clearly defined standards, proper paperwork procedures could not be agreed upon. Bureaucracy was at its finest as the paperwork was routinely rejected based on who happened to be reviewing it. Frustration was high

and time was running out on being able to ship the assets before the Kosovo elections.

Training

Upon arrival in Kosovo, three noncommissioned officers from USAARMC conducted the 5-day new equipment training (NET). Instruction involved hands-on small group instruction with a 5-to-1 student to teacher ratio. Training topics included preventive maintenance checks and services, sight operation, mounting/dismounting the sight for vehicular operations, dismounted LRAS3 operations, far target location, and video recording. Training was conducted both during daylight hours and during periods of limited visibility. The team trained nine soldiers from the BRT and six soldiers from two battalion scout platoons. A follow-on visit to Kosovo was conducted in early December 2000 to oversee the unit rotation and the system's transition to a replacement BRT.

Supporting LRAS3

Supporting the deployed LRAS3s in Kosovo was a major concern as we handed-off the unit. The LRAS3 Program is logistically on track, but because the system is scheduled to be supported through interim contractor support (ICS) until FY03, the direct support level maintenance procedures have not yet been fully finalized. Additionally, test equipment is unavailable, and the Army has no trained LRAS3 maintainers.

Because of the system's low density and the LRAS3's solid maintenance record, it was not economically sound to require that a field service representative (FSR) be stationed full time in Kosovo. The systems are being maintained by a part-time FSR who works for the prime contractor in Germany. With U.S. Army, Europe assistance, we were able to emplace a system that allows the FSR to deploy, on short notice, into a hazardous duty zone to fix broken systems. Program offices need to be sensitive to TF Falcon's particular requirements concerning who is allowed to enter Kosovo, what military equipment and training they must have, and the person's conduct.

Additional Deployments

The feedback from the troops in Kosovo was encouraging. The troops were impressed with the system's capabilities and performance. This success further fueled the product office's commitment to pursue two additional LRAS3 deployments, one to Fort Hood, TX, and one to Fort Lewis, WA. Additionally, two systems were sent to the 4th Infantry Division in January 2001 for use in the Division Capstone Exercise and two systems were sent to the IBCT in March 2001.

These additional deployments were conducted like the Kosovo deployment. USAARMC personnel conducted the NET, and the systems are supported by an FSR from the prime contractor's facility in McKinney, TX. The additional deployments also served as valuable rehearsals for the LRAS3 initial fielding in October 2001. The team was able to incorporate lessons learned from the Kosovo deployment, had the benefit of additional technical manual reviews, and was able to incorporate members from the CECOM NET team that conducted initial field training.

Conclusion

Every system fielding is complicated and often requires months or even years of in-depth planning. Therefore, any deployment of EMD assets prior to establishing the sustainment and maintenance structure, coupled with a high-tempo, real-world operation, is an extremely risky endeavor. In Kosovo, two LRAS3s have rolled over and one LRAS3 sustained depot-level damage when it was knocked from its vehicle mount. The support system put in place was able to address the depot repair in Kosovo, but the LRAS3s involved in rollovers had to be evacuated to the prime contractor facility for repair. These unpredictable and unfortunate events put a significant strain on available EMD spares, but have not diminished the team's commitment to support the Kosovo mission to the fullest.

PM, 2nd GEN FLIR was directed for Kosovo deployment, but voluntarily took on the burden of two additional deployments. The feedback from all three deployments has vastly improved the LRAS3 Program. It has allowed us to improve training quality, the NET trainers, and the technical manuals. We are gaining valuable reliability and maintainability data that assist us in developing the ICS plan. USAARMC is using tactical feedback to develop new scout tactics, techniques, and procedures (TTPs).

The most important program management benefit is the ability to give soldiers a thermal imaging capability second to none. The selection of the First Digitized Division and the IBCT as recipients for the remaining EMD systems was deliberate. These are the first units to receive the LRAS3 and are the units that are transforming the Army into the objective force. Affording them this early opportunity to use these sights and develop their TTPs will contribute to a smoother transformation.

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